

Listed from Portsmouth, R. I., nearly forty years ago.

HOTTONIA INFLATA Ell. Tiverton. Stagnant or quiet waters of ponds and streams. Although more than a dozen stations are known in southeastern Mass., the R. I. records for this plant are not numerous.

SAMOLUS FLORIBUNDUS HBK. Bristol. In brackish mud. Notwithstanding the wide and peculiar distribution of this species, the New England stations are comparatively few and scattered.

LIMOSELLA SUBULATA Ives. Little Compton. In sandy mud and shallow water of pond, near ocean. Also reported from the town of Narragansett, and from Providence. A rare and local plant and always interesting.

ASTER CONCOLOR L. South Kingston. Dry, sandy loam of pastures, and on banks of glacial till. Several stations scattered along the South Shore between Wakefield and Westerly. Also recorded from this general region, but farther inland, near Worden's Pond.

A very handsome plant, often with thick, cylindrical clusters of pink-violet flowers changing to deep blue-violet when pressed. The range of this plant—eastern Mass. (including Nantucket), Rhode Island and southward—adds to its interest.

MIKANIA SCANDENS (L.) Willd. Tiverton. Another plant of wide distribution, but not frequently collected.

ONOPORDUM ACANTHIUM L. Prudence Id.: a small colony in barren pasture. Providence: a large colony, in waste ground, east side of the city. Lincoln: a single, villainous looking shrub, 6 or 7 feet tall and nearly as wide, existed, a few years ago, in this town. Apparently an introduction of rare and local occurrence.

BOSTON SOCIETY OF NATURAL HISTORY.

THE IDENTITY OF *ERIOPHORUM CALLITRIX*.

M. L. FERNALD.

ONE of the most characteristic members of *Eriophorum* § *Vaginata* in northeastern America—from Baffinland and Labrador to Athabasca, south on bogs and in spruce swamps to Newfoundland, Nova Scotia, southern New England, the mountains of Pennsylvania, northern Indiana and Wisconsin—is the Harestail, the densely cespitose species which by early American authors was identified

with *E. caespitosum* Host of Eurasia, by later American botanists was called the Eurasian *E. vaginatum* L. (with which *E. caespitosum* Host is synonymous) and which in 1905¹ I identified with *E. callitrix* Cham., a species described from the Asiatic side of Bering Strait.

That the common plant of northeastern America is not identical with the Eurasian *E. vaginatum* (including *E. caespitosum*) is clear. *E. vaginatum* has the bladeless sheaths of the culm more inflated than in the cespitose plant of eastern America, the oblong flowering spike 1–3 cm. long, the anthers 2–3 mm. long, the achenes narrowly obovoid, and the mature denuded rachis 0.9–1.5 cm. long; the common plant of eastern America having the obovoid to subglobose flowering spike 0.8–1.5 cm. long, the anthers 1–2 mm. long, the achenes broadly obovoid, and the mature denuded rachis 0.6–1 cm. long. In 1905 it was thought that the American plant which had long passed as *E. vaginatum* should be identified with *E. callitrix* Cham. from Bering Strait, this conviction gaining strength from the fact that nothing else was known which so closely matched the description and beautiful figure of Chamisso's species.² The name *E. callitrix*, to be sure, had been applied in Europe to the very slender plant now generally known as *E. opacum* (Björnstr.) Fernald³; but in recent years it has been excluded from European floras and in America has been used exclusively for the common plant of the northeastern bogs and tundra.

In July, 1925, however, while exploring near the Straits of Belle Isle in northwestern Newfoundland, the writer and his companions found themselves in a region where the *Eriophora* of the section *Vaginata* abound: *E. Scheuchzeri* Hoppe, *E. Chamissonis* C. A. Meyer, *E. Chamissonis*, var. *aquatile* (Norman) Fernald, *E. callitrix* of Fernald and other recent American authors, *E. callitrix*, var. *erubescens* Fernald, *E. opacum* (Björnstr.) Fernald; and a seventh and very distinct plant of wet tundra which in some characters suggested the common plant we have been calling *E. callitrix*, in others *E. opacum*, but clearly quite a distinct species from either of them. Always of very low stature (0.5–2 dm. high) and forming the smallest of tufts (1–6 cm. in diameter), with only 1 to 6 culms, the plant was found to be characteristic nearly the length of the south side of the Straits always in regions where the adjacent dry rock-barrens show by their deep mantle of frost-broken and angular residual debris that the

¹ Fernald, RHODORA, vii. 85, 135 (1905).

² Chamisso in C. A. Meyer, Mém. Sav. Etrang. Acad. St. Pétersb. i. 203, t. 2 (1831).

³ Fernald, l. c. 85 (1905).

area was not much modified by the Pleistocene glaciation. From the common cespitose plant of eastern America which has passed as *E. callitrix* the small plant along the Straits of Belle Isle differs at once in having the inflated sheaths of the culms confined to the base of the plant instead of running to the middle of the culms, the spathe and the scales of the spike uniformly blackish and appressed-ascending instead of pale-margined and divergent or even reflexed in age, the anthers at most 1 mm. long, instead of 1–2 mm., the mature fruiting spike turbinate-obovoid and only 1.5–2.3 cm. high, instead of depressed-globose and 2.5–5 cm. in diameter, and the denuded mature rachis with pits opening obliquely upward instead of opening horizontally. From *E. opacum* the lower plant differs by its coarser and stiffer leaves and culms (the slender and delicate culms of *E. opacum* 3–6.75 dm. high), sheaths restricted to the base of the culm and ampliate upward, the upper one usually with a short blade (the more numerous scattered sheaths of *E. opacum* extending nearly to the summit, scarcely inflated and bladeless), the spathe ovate and ribbed nearly to the margin (the narrower spathe of *E. opacum* with broad ribless margin), the bristles brilliant snow-white (in *E. opacum* sordid) and the achenes ellipsoid-obovoid (in *E. opacum* narrowly cuneate-obovoid).

A review of the genus in the light of this species new to the flora of North America leads to the conclusion that this novel plant of northwestern Newfoundland is the species of St. Lawrence Island, fully described and beautifully illustrated as *E. callitrix* Chamisso. Chamisso's description fits it in every particular as do the details of the plate, both of which have been carefully checked with me by Mr. C. A. Weatherby. So long as Chamisso's species was identified with another plant of northeastern America the clarity of his description and plate was not so apparent. Now, however, his presentation of *E. callitrix* becomes convincing and the species takes its place in the long list¹ of plants which divide their ranges between the region of the Gulf of St. Lawrence and the Bering Sea area, a list greatly augmented by the explorations of the past summer. That *E. callitrix* (true) is, indeed, a very rare and localized plant is apparent from the fact that, in spite of the clear description and illustration of it published in 1831, it should have been known to Meinshausen in 1901

¹ See Fernald: *Persistence of Plants in unglaciated Areas of Boreal America*, Mem. Am. Acad. xv. no. 3 (1925.)

only from the original collection: "Hab.: Auf den St. Laurenz-Inseln (nur von *Mertens* gesammelt und mitgebracht)"¹; and that the Vega-Expedition, in exploring the Arctic coast of Eurasia, should find it only on St. Lawrence Bay, "spärlich . . . Nur von diesen Theil des arktischen Sibiriens her bekannt."² That the species should now be found as a member of the relic flora of western Newfoundland is particularly interesting in view of the presence there of such species as *Cerastium Fischerianum* Seringe of the shore of Bering Sea, *Primula sibirica* Jacq., and particularly of *Senecio resedifolius* Less., the type of which came from St. Lawrence Bay.

The common densely cespitose plant of eastern North America, which long passed as *Eriophorum vaginatum* L. and which I have erroneously identified with *E. callitrix*, seems to have no name and it is here proposed as a new species, and since the present study has materially changed our understanding of the characters of the 1-spiked cotton grasses (*Eriophorum* § *Vaginata*), a new key to and brief synopsis of the eastern American representatives of the section are here given.

KEY TO THE EASTERN AMERICAN SPECIES OF *ERIOPHORUM* § *VAGINATA*.

- a. Stoloniferous; culms mostly solitary: empty scales at base of spike chiefly 7 or fewer (Subsection **PAUCIVACUA**)³ b.
 - b. Flowering spike broadly obovoid to subglobose, 0.8–1.2 cm. long: scales lead-color to blackish, with only slightly paler narrow margins, ovate-lanceolate to lance-attenuate: anthers 1 mm. long: fruiting spike depressed-globose, 2–2.5 cm. high: bristles bright-white. *E. Scheuchzeri*.
 - b. Flowering spike oblong-cylindric, 1.5–2 cm. long: scales brownish-drab to blackish, with a distinct whitish margin, ovate to ovate-lanceolate, bluntish: anthers 1.5–3 mm. long: fruiting spike obovoid, 2.5–4 cm. long: bristles reddish, cinnamon-color or whitish. *E. Chamissonis*.
- a. Cespitose, not stoloniferous; the culms and basal leaves more or less rigid, in tufts or tussocks: empty scales at the base of the spike usually 10–15 (Subsection **MULTIVACUA**)⁴ c.
 - c. Spathes and scales of the spike blackish or lead-color, without conspicuous pale margin, appressed-ascending: fruiting spike obovoid, 1.5–2.5 cm. high: achenes 2–2.3 mm. long, 0.5–1.2 mm. broad: pits of the mature de-

¹ Meinshausen: *Die Cyperaceen der Flora Russlands*, Acta Hort. Petrop. xviii. no. 5: 267 (1901).

² Kjellman: *Phanerogamenflora an der asiatischen Kuste der Berings-Strasse*, Die Wissenschaftl. Ergebnisse der Vega-Exped. 372 (1883).

³ *ERIOPHORUM* § *VAGINATA* Anderss., subsection **Paucivacua**. Section *Paucivacuae* Norman, Christ, Vidensk-Selsk. Forh. (1893), no. 16: 45 (1893).

⁴ *ERIOPHORUM* § *VAGINATA* Anderss., subsection **Multivacua**. Section *Multivacuae* Norman l. c. (1893).

nuded rachis opening obliquely upward: plants loosely cespitose, forming tussocks 1–9 cm. in diameter: culms 1–17 d.

d. Culms slender, 3–6.75 dm. high: sheaths scattered, usually extending high above the middle of the culm, scarcely inflated, bladeless: spathe lanceolate or lance-ovate, with broad ribless margin: bristles sordid.....*E. opacum*.

d. Culm stout and stiff, 0.6–2.2 dm. high: sheaths mostly confined to the lower half of the culm; the upper ampliate-inflated and usually bearing a short blade: spathe ovate, ribbed nearly to the margin: bristles bright-white.....*E. callitrix*.

c. Spathes and scales lead-colored, with whitish margins, finally divergent or often even reflexed: fruiting spike depressed-globose to broadly obovoid, 2.5–5 cm. in diameter: achenes 2.5–3.5 mm. long, 1.5–2 mm. broad: pits of the mature denuded rachis opening horizontally outward or only slightly ascending: plants forming broad dense tussocks with many culms.....*E. spissum*.

E. SCHEUCHZERI Hoppe, Bot. Taschenb. 104, App. t. 7 (1800); Fernald, RHODORA, vii. 82 (1905), which see for detailed citations. *E. capitatum* Host. Gram. i. 30, t. 38 (1801). *E. leucocephalum* Bcklr. Flora, xli. 419 (1858).—Arctic regions, south in wet swales and pond-margins to northwestern Newfoundland and southern Alaska.

E. CHAMISSONIS C. A. Meyer in Ledeb. Fl. Alt. i. 70 (1829) as to description for most part, synonymy and citation of Unalaskan specimen, Mém. Sav. Étrang. Acad. St. Pétersb. i. 204, t. 3 (1831), except the Altai plant; Fernald, RHODORA, vii. 83, 133 (1905), which see for detailed citations. *E. intermedium* Cham. ex C. A. Meyer, lcc. (1829, 1831), as synonym, not Bast. *E. vaginatum*, β . *medium* Laestad. ex Fries, Novit. Mant. ii. 1 (1839), as syn. *E. russeolum* Fries l. c. 2 (1839) as syn. and ibid iii. 170 (1842). *E. Scheuchzeri*, var. *Chamissonis* (C. A. Meyer) F. Nyl. Acta Soc. Sc. Fenn. iii. (1852) and in Anderss. Bot. Not. (1857) 58. *E. medium* Anderss. Bot. Not. (1857) 62. *E. rufescens* Anderss. Bot. Not. (1857) 79. *E. vaginatum*, b. Bcklr. Linnaea, xxxvii. 94 (1871). *E. russeolum*, var. *rufescens* Hartm. Handb. ed. 11: 450 (1879).—Labrador to Alaska, south in wet bogs and margins of pools to central and western Newfoundland, St. Pierre et Miquelon, Nova Scotia, southern New Brunswick, James Bay and Ottawa Valley, Ontario, Lake Huron (*vide* Hooker), Wyoming, Idaho, Washington and Vancouver Island.—The typical form has slender culms 1–5 dm. high and rarely more than 1.5 mm. in diameter, with comparatively short and slender leaves, the bristles ferruginous. The bristles are white in *Forma ALBIDUM* (F. Nyl.) Fernald, RHODORA, xxiii. 131 (1921). Var. *albidum* (F. Nyl.) Fernald, RHODORA, vii. 84 (1905). *E. russeolum*, var. *albidum* F. Nylander, Acta Soc. Sc. Fenn. iii. (1852) and in Anderss. Bot. Not. (1857) 58. *E. russeolum*, var. *candidum* Norm. Ind. Supp. 46 (1864).

Var. *aquatile* (Norman), n. comb. *E. russeolum*, var. *aquatile* Norm. Archiv. Weath. Naturvid. v. 509 (1881). *E. aquatile* Norm.

Christ. Vidensk-Selsk. Forh. (1893) no. 16: 43 (1893). *E. Chamissonis*, subsp. *aquatile* (Norm.) Lindb. fil. Svensk Fanerogamfl. 113 (1918).—A very coarse extreme, with culms 4–6 dm. high and 2–4 mm. in diameter at base: basal leaves coarse and elongate, sometimes about equaling the culms: stolons without bladeless sheaths: empty scales at base of spike often more numerous: bristles paler.—The only American material referred here is from NEWFOUNDLAND: shallow pool at base of Cape Dégrat, Quirpon Island, August 7, 1925, *Fernald & Long*, no. 27,545.

E. OPACUM (Björnstr.) Fernald, RHODORA, vii. 85 (1905), which see for many citations. *E. vaginatum*, var. *opacum* Björnstr. Grunddr. af Piteå Lappm. Vaxtfys. 35 (1856). *E. callitrix* Anderss. Bot. Not. (1857) 60; Fries, Bot. Not. (1858) 63; Liebm. & Lange, Fl. Dan. Suppl. t. 122 (1874), a beautiful plate with accurate details.—Straits of Belle Isle, Newfoundland to Alaska, south to Hastings County, Ontario, Saskatchewan, southern Alberta and southern British Columbia; northern Eurasia.

Reports of the plant in New England are due to errors of identification.

E. CALLITRIX Cham. in C. A. Meyer, Mém. Sav. Étrang. Acad. St. Pétersb. i. 203, t. 2 (1831).—Known only from the type region, St. Lawrence Bay on the Asiatic side of Bering Strait, and from the south side of the Straits of Belle Isle, northwestern NEWFOUNDLAND: peaty margins of pools in limestone barrens back of Big Brook, *Fernald & Long*, no. 27,551; borders of pools in tundra back of Big Brook, *Pease & Griscom*, no. 27,552; moist turfy or peaty depressions in limestone barrens, Cook Point, *Fernald & Gilbert*, no. 27,553; boggy tundra, Schooner (or Brandy) Island, *Pease & Long*, no. 27,554; wet peaty depressions in tundra, Boat Harbor, *Fernald, Wiegand & Long*, no. 27,555; borders of depressions in tundra one mile back of Savage Cove, *Fernald, Pease & Long*, no. 27,556.

E. spissum, n. sp., planta densissime arctissime caespitosa, caespite 1–6 dm. diametro; culmis numerosis erectis subrigidis trigonis apice subscabris 1.5–7 dm. altis infra vel rarius supra medium vaginis 1–2 inflatis remotis dispositis; foliis filiformibus trigonis scabris vaginis deinde fibrillosis; spica obovoidea vel subglobosa 0.8–1.5 cm. alta deinde depresso-globosa 2.5–5 cm. diametro; squamis obovatis vel ovato-lanceolatis longe acuminatis nigrescente-cinereis margine pallidis inferioribus divergentibus vel reflexis; antheris 1–2 mm. longis; achaeniis obovoideis 2.5–3.5 mm. longis 1.5–2 mm. latis; setis candidis; foveis rhacheos denudatae plerumque divergentibus.—*E. caespitosum* Pursh, Fl. Am. Sept. i. 57 (1814), not Host. *E. vaginatum* Torr. Fl. 65 (1824) and later Am. auth., not L. *E. callitrix* Fernald, RHODORA, vii. 85 (1905), not Cham.—Bogs, tundra and mossy swamps, Baffinland and Labrador to Athabasca, south to Newfoundland, Nova Scotia, southern New England, mountains of

Pennsylvania, northern Indiana and Wisconsin. The following, selected from an extensive representation, are characteristic. **BAFFINLAND:** American Harbor, Cumberland Gulf, 1877-78, *Krumlein*; **LABRADOR:** Kangalaksiorvik Bay, *Owen Bryant*, no. 39; Tub Harbor, *Sornborger*, no. 280; Blanc Sablon, *Fernald & Wiegand*, no. 2734. **NEWFOUNDLAND:** swales on limestone barrens, Sandy (or Poverty) Cove, July 25, 1925, *Fernald, Long & Gilbert*, no. 27,557 (TYPE in Gray Herb.); Quarry, *Fernald & Wiegand*, no. 4721; Millerton Junction, *Fernald & Wiegand*, no. 4722; Balena, *Wm. Palmer*, no. 1338. **QUEBEC:** Lagorgendière, *St. John*, no. 90,196; Natashquan, *Victorin & Rolland*, no. 18,138; Tabletop Mts., *Fernald & Smith*, no. 25,604; Mt. Albert, *Fernald & Collins*, no. 173; Knowlton, Brome Co., May 27, 1923, *C. H. Knowlton*. **NEW BRUNSWICK:** Bass River, Kent Co., 1869, *Fowler*. **NOVA SCOTIA:** Grand Lake, Sydney, July 5, 1909, *J. R. Churchill*; Yarmouth, *Howe & Lang*, no. 44. **MAINE:** Fort Kent, *Fernald*, no. 2090; Orono, *Knight*, no. 89; Rumford, May, 1890, *Parlin*; Cutler, July 3, 1902, *Kennedy et al.*; Sargent's Mt., Mt. Desert I., June 16, 1890, *Rand*; Matinicus, *C. A. E. Long*, no. 22. **NEW HAMPSHIRE:** Colebrook, *Pease*, no. 10,929; Lake of the Clouds, Mt. Washington, *Wm. Boott et al.*; Mt. J. Q. Adams, *Pease*, no. 10,239; Derry, May 10, 1913, *C. F. Batchelder*; top of Mt. Monadnock, *H. D. Thoreau et al.* **VERMONT:** summit of Mt. Mansfield, *Pringle et al.* **MASSACHUSETTS:** Tewksbury, *E. Tuckerman et al.*; Chestnut Hill, May 17, 1896, *E. F. Williams*; Canton, *Blake*, no. 56; Provincetown, *Fernald & Long*, no. 18,070; Charlton, May 20, 1899, *Harper*; Granville, *F. C. Seymour*, no. 139; Washington, May 31, 1909, *Hoffmann*. **RHODE ISLAND:** Glocester, May 19, 1904, *Collins*. **CONNECTICUT:** Willington, June 13, 1906, *Bissell*; Middlebury, May 14, 1901, *Harger*. **NEW YORK:** Mt. McIntyre, *House*, no. 9495; Norfolk, *Phelps*, no. 198; Pecksport, *Maxon*, no. 6188; Cortland, *Eames*, no. 3595. **PENNSYLVANIA:** Pocono Mountain, May 31, 1865, *Traill Green*; Tannersville, May 30, 1902, *Canby*. **UNGAVA:** Great Whale River, *Low*, no. 63,278. **ONTARIO:** Mer Bleue, *Victorin*, no. 59; Edmonton, *Jas. White*, no. 11,469. **MICHIGAN:** Keweenaw Co., *Farwell*, no. 550; Turin, June 4, 1901, *Barlow*; Agricultural College, June 6, 1893, *Hicks & Wheeler*. **INDIANA:** Garrett, *Deam*, no. 3005. **WISCONSIN:** Milwaukee, May, 1844, *Lapham*. **KEEWATIN:** Churchill, *J. M. Macoun*, nos. 79,222, 79,224. **ATHABASCA:** Island Creek, Peace River, *J. M. Macoun*, no. 59,541.

E. SPISSUM, var. **erubescens** (Fernald), n. comb. *E. callitrix*, var. *erubescens* Fernald, *RHODORA*, vii. 85 (1905).—Fruiting spikes broadly obovoid, scarcely depressed-globose as in typical *E. spissum*; scales less reflexed at maturity; bristles brown to coppery red: pits of denuded rachis opening obliquely upward.—Newfoundland and adjacent southern Labrador.

The tendency of the pits of the rachis to ascend and the accompanying tendency to less depressed fruiting spikes along with the highly

colored bristles suggest the possible specific distinctness of var. *erubescens*. The achenes, however, seem inseparable from those of typical *E. spissum* although they are sometimes inclined to be more slender. No flowering specimens of var. *erubescens* have been seen and the anthers are not known, the plant being already in full maturity in July when botanists usually visit Newfoundland.

In my earlier treatment the species here called *Eriophorum spissum* was made to include *E. brachyantherum* Trautv. & Meyer in Middend. Reise,—Fl. Ochot. 98 (1856) and also a plant of the Altai which had been distributed by C. A. Meyer as *E. Chamissonis*. The latter plant is, however, as clearly pointed out by Meinshausen, a non-cespitose and stoloniferous species, *E. altaicum* Meinsh.,¹ related to but distinct from *E. Chamissonis* as represented by Chamisso's material. *E. brachyantherum*, likewise, does not belong with the eastern American *E. spissum*, having the scales of the spike appressed-ascending and uniformly blackish and very delicate leaves as long as the culms.²

GRAY HERBARIUM.

CLADONIA APODOCARPA; A NEW SPECIES.

C. A. ROBBINS.

IN almost any region there may be found localities quite entirely possessed by a varying intermixture of *Cladonia* species. In Plymouth County, for instance, a typical colony of old abandoned fields is likely to include species such as *subcariosa*, *pyxidata*, *chlorophaea* and *strepsilis*. Another species also likely to be found associated and always occurring in a sterile condition locally is *foliacea*.

Excepting the last, the various species forming these colonies are represented by plants in all stages of development from sterile primary squamules to fully evolved forms and hence the attention of the collector will be as often concerned with the thallus of these species as with clusters of plants having more or less fully developed podetia. But in attempting to refer all patches of squamules to the species to which each properly belongs he frequently will meet with a characteristic little plant, represented only by a thallus, which is

¹ Meinsh. l. c. 267 (1901).

² See Meinsh. l. c. 269 (1901).